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Crystallization kinetics of poly(lactic acid)-talc composites

D. Battegazzore, S. Bocchini[*]*, A. Frache*

Politecnico di Torino, Alessandria Site, V.le Teresa Michel 5, 15100 Alessandria, Italy

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Abstract. The crystallization kinetics of poly(lactic acid) / talc composites were determined over a range of 0 to 15 wt% of talc. Talc was found to change the crystallization kinetics. The presence of talc increases the crystallization rate and this increase is related to talc concentration and to crystallization temperature. In order to understand the effect of talc and PLA crystallinity on mechanical properties, dynamic mechanical thermal analyses were performed on poly(lactic acid) / talc composites before and after an annealing process. It was demonstrated that the presence of crystals improves thermo-mechanical properties but in order to achieve good results at high temperatures the reinforcing effect of a filler such as talc is necessary.

Keywords: *thermal properties, crystallization, polylactic acid, mechanical properties, polymer composites*

[*]Corresponding author, e-mail: sergio.bocchini@polito.it